

# PEEC5303 **RADAR AND TV ENGINEERING** (3-0-0)

## **MODULE – I (12 hours)**

**Basic Television System And Scanning Principles:** Block diagram of TV transmitter & receiver, Sound and picture transmission, scanning process, transmission & reception of video signal, brightness perception & photometric quantities, aspect ratio & rectangular scanning, persistence of vision & flicker, Kell factor, vertical and horizontal resolution, interlaced scanning, Composite Video Signal, Horizontal and Vertical Synchronous and Blanking Standard Signal, TV pick up tubes, Vidicon, CCD.

## **Module – II (12 hours)**

**Color and Digital TV Technology:** mixing of colors and colors perception, chromaticity diagram, color TV signals & transmission, NTSC & PAL system, color TV receiver & specification, Fully digital TV system, Digital TV signal & transmission, digitized video parameters, digital TV receiver, fundamentals of Flat panel displays, Plasma displays, Liquid crystal displays, and Large screen displays.

## **Module – III (14 hours)**

**Introduction to Radar:** Basic radar, radar block diagram, radar frequencies & applications, Radar Indicators.

**RADAR Equation:** Detection of signal in noise, receiver noise and SNR, probability of detection and false alarm, integration of radar pulses, radar cross section of targets, PRF, system losses.

**MTI, CW, FMCW RADAR:** Introduction, delay line cancellers, Doppler filter banks, limitation of MTI, Staggered PRF, Pulse Doppler radar, Tacking by RADAR, mono pulse, sequential lobing, & conical scan of targets.

### **Text Books:**

1. Television and video Engineering by A. M Dhake, 2<sup>nd</sup> edition, Tata McGraw Hill.
2. Introduction to RADAR systems by Merrill I. Skolnik, 3<sup>rd</sup> edition, Tata McGraw Hill.

### **Reference Books:**

1. Modern Television Practice-Principles, Technology and Servicing, by R R Gulati.
2. Basic Television & Video systems, Bernard Grob, Charles E Hernfon, 6<sup>th</sup> edition, McGRAW HILL.
3. RADAR Principles, Technology, Application by Byron Edde, 1<sup>st</sup> edition, Pearson, 2004.
4. Understanding RADAR system by Simon Kingsley, Shaun Quegan, Standard publication.
5. Principles of RADAR by J. C. Toomay, PHI, 2<sup>nd</sup> edition, 2004.